REMARKS

Applicants have amended claims to correct the informalities pointed out by the examiner. The entry of these amendments is respectfully requested because they are mere clerical corrections and do not therefore constitute new matter.

Applicants have added new claims 34-38. Support to these claims can be found throughout the specification and specifically, for example on paragraph bridging pages 13-14, page 14, lines 3-10, page 20, lines 14-30, and page 21, lines 1-5. Therefore, the new claims are supported by the specification as filed and do not introduce new matter and their entry is respectfully requested.

The Examiner objected to claims 11 and 23 due to informalities. The word "comprise" in step (d) of claims 11 and 23 has been corrected to read "comprising" as suggested by the Examiner. Applicants therefore respectfully submit that the objections to claims 11 and 23 should be withdrawn.

Turning now to the specific rejections.

Claims 11 and 23-33 were rejected under 35 U.S.C. §102(b) as being anticipated by Smith et al., U.S. Patent No. 5,753,439, filed May 19, 1998 ("Smith"). Applicants respectfully disagree and submit that the rejection should be withdrawn for the following reasons.

The Examiner argues that the Smith claims to an array comprising 10-10,000 probes with 2-2000 repeats anticipate the present claims. However, there is a crucial difference between the Smith probes and the Applicants' probes:

The arrays taught by Smith et al. require one constant 5'-region, which comprises a sequence that is at least partially complementary to a target nucleic acid sequence and which is attached to the solid surface followed by **one** internal variable region comprising one or more repeat sequences, wherein the repeat sequence can vary in sequence and length, and the variable sequence is followed by **a second** constant 3'-region which also comprises a sequence that must be complementary at least to part of the target nucleic acid sequence (see, Figure 1A in Appendix A attached herewith, and col. 9, lines 18-34 of Smith). Consequently**, each probe** of the Smith array is capable of **binding only one target** nucleic acid.

Unlike the array of Smith, the present claims are directed to an array, which comprises only one constant region, the 5'-region, attached to a solid surface followed by at least two copies, preferably more than two copies, of a nucleic acid sequence that is complementary to the target nucleic acid sequence, thereby repeating a nucleic acid complementary to the target sequence along the z-coordinate on one single probe. Unlike the probes of Smith, the probes of the present claims do not require a constant 3' region which binds the 5' end of the target nucleic acid. Consequently, **each probe** of the present array is capable of **binding at least two target nucleic acids**, while occupying only one spot in the x/y dimension (see, Figure 1B and Figure 2B, Appendix A). Preferably, each probe binds multiple target nucleic acids along the z coordinate. For example, when there are 10 repeats, there can be ten target nucleic acids, when there are fifty repeats, there can be 50 bound target nucleic acids along the z coordinate. Whereas with the Smith array, the 5' end of the probe and the 3' end of the probe must bind to the target nucleic acid. Accordingly, it is clear only **one** target nucleic acid can bind to each probe. Thus there is no anticipation (see particularly claims 34-38).

It is this multiplication of the target sequence in the z-dimension allowing the almost limitless extension of the immobilized probe in the z-dimension, that clearly differentiates the arrays of the present invention from the arrays of Smith.

Therefore, unlike the arrays in Smith (see, Figure 2A, Appendix A), the present arrays provide an almost limitless capacity to attach copies of any target sequence, not just repeat sequences, as variable regions in z-dimension, that take up only one x/y spot on the array surface (see, Figure 2B, Appendix A). Consequently, the arrays of the present invention also provide an array with a high density of different probes without compromising the sensitivity.

In light of the above, Applicants submit that Smith does not include all the elements of the Applicants' claims and that the rejection of claims 11 and 23 under 35 U.S.C. § 102(b) over Smith should therefore be withdrawn.

For the reasons discussed and stated above, and herein incorporated by reference, Applicants respectfully submit that the Examiner's argument regarding claim 30, claims

24-29, and 31-33, are similarly addressed. Therefore, applicants submit that the rejections of claims 30, 24-29, and 31-33 should be withdrawn.

Accordingly, in view of the foregoing, Applicants respectfully submit that all claims comply with 35 U.S.C. § 102(b).

In view of the foregoing, applicants submit that all claims are in condition for allowance. Early and favorable action is requested.

Respectfully submitted,

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